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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/967,307	09/28/2001	Brian A. Batke	01AB041	5198

63122   7590   12/19/2006
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EXAMINER
SALL, EL HADJI MALICK

ART UNIT	PAPER NUMBER
2157	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	12/19/2006	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

	Office Action Summary	Application No.	Applicant(s)
		09/967,307	BATKE ET AL.
		Examiner	Art Unit	
		El Hadji M. Sall	2157	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on _12 June 2006_.

2a)☒ This action is **FINAL.**   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) _1-22_ is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) _1-22_ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

        1.☐ Certified copies of the priority documents have been received.

        2.☐ Certified copies of the priority documents have been received in Application No. _____.

        3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☐ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application

6)☐ Other: _____.

DETAILED ACTION

1. This action is responsive to the amendment filed on June 12, 2006. Claims 1, 12 and 14 are amended. Claims 1-22 are pending. Claims 1-22 represent industrial control system with autonomous with web server.

2. *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1, 4, 12, 14 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lindner et al. (US 6,640,140) in view of Papadopoulos et al. (US 6,640,140).

Lindner teaches the invention substantially as claimed including PLC executive

with integrated web server (see abstract).

As to claims 1, 12 and 14, Lindner teaches a Web interface module for an

industrial control system, an industrial control system for an industrial control system

and an industrial control system comprising: (Figure 1)

a plurality of I/O modules sending and receiving electrical signals to and from an

industrial process (Figure 1, (23a, 23b and 23c));

a controller network communicating with the I/O modules (figure 1, (22b, 60));

a programmable logic controller attachable to the controller network to execute a

stored control program to exchange data with the I/O modules over the controller

network to control the industrial process (figure 1, (70)); and

a Web interface module (figure 1, (30a) including:

(a) an Internet interface for connecting to a Web accessing communications

medium (figure 1, (33); figure 2);

(b) a network interface for connecting to the controller network figure 1, (22b));

and

(c) a processing unit executing a stored interface program to communicate

directly with at least one I/O module and to pass data between the Web accessing

communications medium and the I/O module, the passing of data including the writing

of data to the I/O modules defining the electrical signals to be sent by the I/O module to

the industrial process and the reading of data from the I/O modules defined by electrical

signals received by the I/O modules from the industrial process (figure 1, item 11,

Lindner discloses the passing of data, which inherently includes the writing and the

reading of data to and from the I/O modules. In addition, the limitation such as "the

passing of data including **the writing of data** to the I/O modules defining the electrical

signals to be sent by the I/O module to the industrial process and from the I/O modules

defined by electrical signals received by the I/O modules **the reading of data** from the

industrial process" implies that data is written and read to and from the I/O modules);

Lindner fails to teach explicitly whereby communications may be had with the I/O

module without intervention of the programmable logic controller.

However, Papadopoulos teaches web interface to a programmable controller.

Papadopoulos teaches communications may be had with the I/O module without

intervention of the programmable logic controller (figure 2; column 4, lines 39-53,

Papadopoulos discloses a web The web server 30 provides a direct connection for a

programmable logic controller (PLC) 32 to the Internet 14 by plugging the web server 30

into its back plane 34 (i.e. there is no intermediate device between the web server and

the I/O (i.e. backplane, which is A **backplane** is a circuit board (usually a printed circuit

board) that connects several connectors in parallel to each other, so that each pin of

each connector is linked to the same relative pin of all the other connectors, forming a

computer bus. It is used as a backbone to connect several printed circuit board cards

together to make up a complete computer system (see www.answers.com)), which is

the case here since the PLC has no real direct connection to the server but by

connecting the PLC to the server through the backplane (i.e. I/O). Therefore, there is communication between the web server and the I/O without the intervention of the PLC).

It would have been obvious at the time of the invention for an artisan of ordinary skill in the art to combine the teachings of Lindner as articulated above with establishing communication with a remote client as taught by Papadopoulos, because this system would allow control over remote devices without the intervention of the controller's PLC.

As to claims 4 and 15, Lindner teaches the Web interface module and the industrial control system of claims 1 and 14 wherein the processing unit executing the stored program also opens at least one connection on the connected messaging network between the programmable logic controller and the Web interface to transfer data between the programmable logic controller and the interface (column 4, lines 19-59).

4.   Claims 7-8, 18-19 are rejected under 35 U.S.C. §103(a) as being unpatentable over Lindner et al. (US 6,640,140) in view of Papadopoulos et al. (US 6,061,603).

Lindner teaches the invention substantially as claimed including PLC executive with integrated web server (see abstract).

As to claim 7, Lindner substantially teaches the Web interface module of claim 1 wherein the processing unit executing the stored program opens connections on the connected messaging network with a plurality of I/O modules and wherein the processing unit includes an I/O image table and wherein the passing of data between the Web accessing communications medium and the I/O module separately reads and writes data between the Web accessing communications medium the I/O image table, and between the I/O modules and the I/O image table; where the transfer of data between the Web accessing communications medium and the I/O is implemented through the I/O image table. (See Fig. 1).

Lindner fails to address the reads and writes data and the I/O image table.

However, Papadopoulos specifically discloses read/write of data at col. 8 Table 1.

It would have been obvious at the time of the invention for an artisan of ordinary skill in the art to combine the teachings of Lindner as articulated above with the reads and writes data and the I/O image table as taught by Papadopoulos, because this system would afford greater control over remote devices.

As to claim 8, Lindner substantially teaches the Web interface module of claim 7 wherein the processing unit executing the stored program reads and writes data between the I/O image table and the I/O modules in a predetermined order. (See Fig. 1 (11), col. 4, lines 42-45 - a ladder program is executed rung by rung in a rigid manner). Lindner does not expressly address the reads and writes data and the I/O image table.

However, Papadopoulos specifically discloses read/write of data at col. 8 Table 1.

It would have been obvious at the time of the invention for an artisan of ordinary

skill in the art to combine the teachings of Lindner as articulated above with the reads

and writes data and the I/O image table as taught by Papadopoulos, because this

system would afford greater control over remote devices.

As to claim 18, Lindner substantially teaches the industrial control system of

claim 14 wherein the processing unit executing the stored interface program opens

connections on the connected messaging network with a plurality of I/O modules and

wherein the processing unit includes an I/O image table and wherein the passing of

data between the Web accessing communications medium and the I/O module

separately reads and writes data between the Web accessing communications medium

and the I/O image table, and between the I/O modules and the I/O image table; where

the transfer of data between the Web accessing communications medium and the I/O is

implemented through the I/O image table. (See Fig. 1 (22b, 60)):

Lindner does not expressly address the reads and writes data and the I/O image

table. However, Papadopoulos specifically discloses read/write of data at col. 8 Table 1.

Hence, it would have been obvious at the time of the invention for an artisan of

ordinary skill in the art to combine the teachings of Lindner as articulated above with the

reads and writes data and the I/O image table as taught by Papadopoulos,

because this system would afford greater control over remote devices.

As to claim 19, Lindner substantially teaches the industrial control system of

claim 18 wherein the processing unit executing the stored interface program reads and

writes data between the I/O image table and the I/O modules in a predetermined order.

(See Fig. 1 (11), col. 4, lines 42-45 - a ladder program is executed rung by rung in a

rigid manner).

Lindner does not expressly address the reads and writes data and the I/O image

table. However, Papadopoulos specifically discloses read/write of data at col. 8 Table 1.

It would have been obvious at the time of the invention for an artisan of ordinary

skill in the art to combine the teachings of Lindner as articulated above with the reads

and writes data and the I/O image table as taught by Papadopoulos, because this

system would afford greater control over remote devices

5.   Claims 2, and 13 are rejected under 35 U.S.C. §103(a) as being unpatentable

over Lindner et al. (US 6,640,140) in view of Ichimura Katsuhiko (JP10-011325).

Lindner teaches the invention substantially as claimed including PLC executive

with integrated web server (see abstract).

As to claim 2, Lindner substantially teaches the Web interface module of claim 1

wherein the processing unit also executes the stored program to receive a write disable

command from the programmable logic controller causing the stored program to allow

direct reading of data from the I/O module but not direct writing of data to the I/O

module; whereby conflicting writing of data to the I/O module is prevented. (See col. 4,

Lindner does not expressly address the reading and writing of data.

However, Ichimura specifically discloses read/write of data. (See Solution on

page 1.)

It would have been obvious at the time of the invention for an artisan of ordinary

skill in the art to combine the teachings of Lindner as articulated above with the reading

and writing of data as taught by Ichimura, because this system would afford greater

control over remote devices.

As to claim 13, Lindner substantially teaches the industrial control system of

claim 1 wherein the processing unit also executes the stored program to receive a write

disable command from the programmable logic controller causing the stored interface

program to allow direct reading of data from the I/O module but not direct writing of data

to the I/O module; whereby conflicting writing of data to the I/O module is prevented.

(See Fig.1 .).

Lindner does not expressly address the reading and writing of data.

However, Ichimura specifically discloses read/write of data. See Solution.

Hence, it would have been obvious at the time of the invention for an artisan of ordinary

skill in the art to combine the teachings of Lindner as articulated above with the reading

and writing of data as taught by Ichimura, because this system would afford greater

control over remote devices.

6.   Claims 5 and 16 are rejected under 35 U.S.C. §103(a) as being unpatentable

over Lindner et al. (US 6,640,140) in view of Brown et al. (US 6,542,925.).

Lindner teaches the invention substantially as claimed including PLC executive

with integrated web server (see abstract).

As to claim 5, Lindner teaches the Web interface module of claim 1 wherein the

connected messaging network is selected from the group consisting of ControlNet,

DeviceNet and EtherNet. (See Fig. 1 (22b, 60)) (See also Brown col. 4, lines 31-36.)

As to claim 16, Lindner teaches the industrial control system of claim 14 wherein

the connected messaging network is selected from the group consisting of ControlNet,

DeviceNet, and EtherNet. (See Fig. 1 (22b, 60)) (See also Brown col. 4, lines 31-36.)

7.   Claims 6, 9-11, 17 and 20-22 are rejected under 35 U.S.C. §103(a) as being

unpatentable over Lindner et al. (US 6,640,140) in view of Brown et al. (US 6,542,925.)

and in further view of Papadopoulos et al. (US 61061,603).

Lindner teaches the invention substantially as claimed including PLC executive

with integrated web server (see abstract).

As to claim 6, Lindner teaches the Web interface module of claim 1 wherein the

Web accessing communications medium is selected from the group consisting of a wire

cable, and a radio link. (See Fig. 1).

Lindner does not expressly address fiber optic cable. However, Papadopoulos

does at col. 4, lines 64-65.

It would have been obvious at the time of the invention for an artisan of

ordinary skill in the art to combine the teachings of Lindner with the fiber optic cable

of Papadopoulos, because this system would be versatile.

As to claim 9, Lindner substantially teaches the Web interface module of claim 1

wherein the connected messaging network comprises a parallel backplane between the

Web interface module and the programmable logic controller and a serial network

between the backplane and the I/O modules.

Lindner does not expressly address a serial network as the messaging network.

However, Brown specifically discloses such network at col. 4, lines 25-35.

Hence, it would have been obvious at the time of the invention for an artisan of ordinary

skill in the art to combine the teachings of Lindner as articulated above with the serial

network as taught by Brown, because this system would be versatile. Neither Lindner

nor Brown teaches a parallel backplane. However, Papadopoulos does at col. 4, lines

25-35.

It would have been obvious at the time of the invention for an artisan of ordinary

skill in the art to combine the teachings of Lindner and the serial network as taught by

Brown with the backplane of Papadopoulos, because this system would be versatile.

As to claim 10, Lindner substantially teaches the features of claim 9 as discussed

above. Lindner does not expressly address the network interface of the Web interface

module, which attaches to the backplane.

However, Papadopoulos specifically discloses such configuration. (See Fig. 2

and Fig. 3.).

It would have been obvious at the time of the invention for an artisan of ordinary

skill in the art to combine the teachings of Lindner as articulated above with the

configuration taught by Papadopoulos, because this system would be more robust.

As to claim 11, Lindner substantially teaches the features of claim 9 as discussed

above. Lindner does not expressly address the network interface of the Web interface

module, which attaches to the serial network.

However, Brown specifically discloses the network interface of the Web interface

module, which attaches to the serial network at col. 4, lines 25-35.

It would have been obvious at the time of the invention for an artisan of ordinary

skill in the art to combine the teachings of Lindner as articulated above with the serial

network taught by Brown, because this system would be versatile.

As to claim 17, Lindner substantially teaches the industrial control system of claim 14 wherein the Web accessing communications medium is selected from the group consisting of a wire cable, and a radio link. (See Fig. 1).

Lindner does not expressly address fiber optic cable. However, Papadopoulos does at col. 4, lines 64-65.

It would have been obvious at the time of the invention for an artisan of ordinary skill in the art to combine the teachings of Lindner with the fiber optic cable of Papadopoulos, because this system would be versatile.

As to claim 20, Lindner does not teach the industrial control system of claim 14 wherein the connected messaging network comprises a parallel backplane between Web interface module and the programmable logic controller and a serial network between the backplane and the I/O modules.

However, Brown specifically discloses a serial network as the messaging network at col. 4, lines 25-35.

It would have been obvious at the time of the invention for an artisan of ordinary skill in the art to combine the teachings of Lindner as articulated above with the serial network as taught by Brown, because this system would be versatile. Neither Lindner nor Brown teaches a parallel backplane. However, Papadopoulos does at col. 4, lines 25-35.

It would have been obvious at the time of the invention for an artisan of ordinary skill in the art to combine the teachings of Lindner and the serial network as taught by

Brown with the backplane of Papadopoulos, because this system would be versatile.

As to claim 21, Lindner does not teach the industrial control system of claim 20 wherein the network interface of the Web interface module attaches to the backplane.

However, Papadopoulos specifically discloses such configuration. (See Fig. 2 and Fig. 3.).

It would have been obvious at the time of the invention for an artisan of ordinary skill in the art to combine the teachings of Lindner as articulated above with the configuration taught by Papadopoulos, because this system would be more robust.

As to claim 22, Lindner does not teach the industrial control system of claim 10 wherein the network interface of the Web interface module attaches to the serial network.

However, Brown specifically discloses such network at col. 4, lines 25-35.

It would have been obvious at the time of the invention for an artisan of ordinary skill in the art to combine the teachings of Lindner as articulated above with the serial network taught by Brown, because this system would be flexible. Neither Lindner nor Brown teaches network interface of the Web interface module attaches to the serial network. However, Papadopoulos specifically discloses such configuration. (See Fig. 2 and Fig. 3.).

It would have been obvious at the time of the invention for an artisan of ordinary skill in the art to combine the teachings of Lindner as articulated above with the

configuration taught by Papadopoulos, because this system would be more robust.

8.   Claim 3 is rejected under 35 U.S.C. §103(a) as being unpatentable over Lindner
et al. (US 6,640,140) in view of Hauet (US 6,799,077.).

Lindner teaches the invention substantially as claimed including PLC executive
with integrated web server (see abstract).

Lindner teaches the invention substantially as claimed including a programmable
logic controller for use as part of an industrial control system or as part of n automated
system and a corresponding method, the controller including an interface to the Internet,
and including a web server allowing a remote computer to access web pages
maintained by the controller providing information relevant to the control function of the
controller such as control sensor readings and, optionally, information about the status
of the control system. (See abstract.).

As to claim 3, Lindner does not expressly teach the Web interface module of
claim 1 wherein the network interface provides a connected messaging protocol.

However, Hauet specifically discloses such network at col. 4, lines 35-45 (IP
datagrams).

it would have been obvious at the time of the invention for an artisan of ordinary

skill in the art to combine the teachings of Lindner as articulated above with the serial

network as taught by Brown, because this system would be versatile.

9.   ***Response to Arguments***

Applicant's arguments filed 06/12/06 have been fully considered but they are not

persuasive.

(A)   Applicant argues that Papadopoulos does not remedy this deficiency of

Lindner. While Figs. 2 and 3 of Papadopoulos show an electrical path between the Web

server 30 and I/O modules 40 via a back plane 34, Papadopoulos clearly indicates that

the Web server 30 communicates exclusively with the PLC 32 and in no case

communicates directly with the I/O modules 40. This can be seen at col. 4, lines 39-53,

cited by the Examiner and is more clearly at col. 6, lines 1-3, which describe the

mechanism for PLC/Web communication as being through a dual port memory 38. Col.

5, lines 24-52, also indicates that the mechanism for communication is restricted to be

between the Web server and the PLC.

In regards to point (A), examiner respectfully disagrees.

In figure 2 and in column 4, lines 39-53, Papadopoulos discloses a web The web

server 30 provides a direct connection for a programmable logic controller (PLC) 32 to

the Internet 14 by plugging the web server 30 into its back plane 34 (i.e. there is no

intermediate device between the web server and the I/O (i.e. a **backplane** is a circuit

board (usually a printed circuit board) that connects several connectors (i.e. I/O

connectors) in parallel to each other, so that each pin of each connector is linked to the

same relative pin of all the other connectors, forming a computer bus. It is used as a

backbone to connect several printed circuit board cards together to make up a

complete computer system (see www.answers.com)), which is the case here since the

PLC has no real direct connection to the server but by connecting the PLC to the

server through the backplane (i.e. I/O). Therefore, there is communication between the

web server and the I/O without the intervention of the PLC.

     (B)   Applicant argues that while not cited against the independent claims, the

Examiner has cited Ichimura as providing a teaching reference for the conflict

prevention mechanism of the present invention. Applicant believes there is insufficient

teaching in Ichimura for this combination. Ichimura, judged from its abstract, is intended

to protect against software faults in a single machine, not against conflicts between two

machines without software faults. Further, the control of outputs described in Ichimura

seems to be based on criteria other than a possible conflict. Applicant recognizes that

the disabling of outputs is generally known in the art, but a PLC controlled disabling of

outputs dependent on their source as from the Web, is not fairly suggested or taught by

any of the cited references. Even in combination, it is believed that these references do

not provide sufficient enablement for how the combination would be effected.

     In regards to point (B), examiner respectfully disagrees.

In response to the above applicant's argument, the examiner recognizes that

obviousness can only be established by combining or modifying the teachings of the

prior art to produce the claimed invention where there is some teaching, suggestion, or

motivation to do so found either in the references themselves or in the knowledge

generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5

USPQ2d 1596 (Fed. Cir. 1988)and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed.

Cir. 1992). In this case, on page 1, under Solution, Ichimura discloses read/write of

data. It would have been obvious at the time of the invention for an artisan of ordinary

skill in the art to combine the teachings of Lindner as articulated above with the reading

and writing of data as taught by Ichimura, because this system would afford greater

control over remote devices.

10.   **Conclusion**

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time

policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any
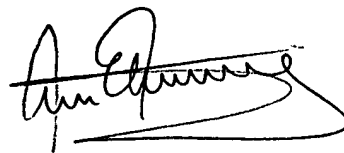
extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later

than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to El Hadji M Sall whose telephone number is 571-272-

4010. The examiner can normally be reached on 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Ario Etienne can be reached on 571-272-4001. The fax phone number for

the organization where this application or proceeding is assigned is 571-273-4010.

Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free).

El Hadji Sall
Patent Examiner
Art Unit: 2157

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SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100